FOREWORD

THE legendary figures in the history of science are nearly all associated in memory with specialised topics however full their lives may have been of other events. In the last century of the physical sciences the names of Maxwell, J. J. Thomson, Rutherford, or Einstein, for example, are synonymous with electromagnetic radiation, the electron, the atom, and relativity, but their lives were full of other important activities both within and outside their particular science. Will the name of Appleton similarly live in memory only as synonymous with the ionosphere?

He, himself, might well wish it to be so. It is the single coherent thread throughout his life. However great his burdens elsewhere he continued his researches to the end. Forty years after his great discoveries, at a time when he must often have felt overwhelmed with the problems of Edinburgh, he was still making significant contributions to a subject which like all other topics in science had grown enormously complex. That is a measure of his devotion to science and of his continued mastery of a subject which he had prised open as a young man.

In an earlier age Appleton might well have remained altogether in his scientific laboratory. In fact, his life spanned the transitional stage where science grew in stature to become a vital and expensive activity of the modern state. Because of this he became a pioneer, not merely in scientific research, but of the scientist who was called upon to play an essential part in the administration of science. This he did with such distinction as Secretary of the Department of Scientific and Industrial Research during the years of the Second World War, and subsequently over a wider sphere as Principal and Vice-chancellor of the University of Edinburgh, that one cannot be certain now that in the context of history Appleton's name will inevitably and only be associated with the ionosphere. It is very hard indeed to find a parallel in the modern world of a scientist of such eminence who may well be remembered for his reign in two other distinct activities.

Appleton's science and his administrative duties were so inextricably entangled with the origins and development of radar that the future historian may well wonder why he was not also regarded as its father-figure and founder. I suspect that far more will some day be written on this subject and that Mr. Clark's avoidance of too deep a penetration into the affair has been conditioned by the necessities of the law of libel. Appleton was too great a man to descend to a public squabble, although indeed it is hard to believe that he was not greatly provoked by Watson-Watt's *Three Steps to Victory*, and even more so by Watson-Watt's address on "The Evolution of Radiolocation" at the Radiolocation Convention of the Institution of Electrical Engineers in March 1946 when he said:

> ...I would admit as founder members of the Radiolocation Club, A. P. Rowe, H. E. Wimperis, Henry Tizard, Philip Cunliffe-Lister, A. V. Hill, P. M. S. Blackett, Robert Watson Watt, A. F. Wilkins, E. G. Bowen, Adolf Hitler, and Hermann Goering. I would, in the most friendly manner, deny admission to Heinrich Hertz, to E. V. Appleton, to Briet and Tuve, and even to T. L. Eckersley...

Appleton had made his classic ionospheric investigations years before I was even a student, and when I first remember meeting him in the early years of the war the major scientific part of his career was over. Then, as Secretary of the DSIR, he was leading a delegation to the war-time establishment in which I was working. The new radar device which I was to demonstrate failed to work, but Appleton did not continue his tour until he had found out exactly what I had hoped to demonstrate, and left me with words of encouragement. Mr. Clark has related how, in later years and in an entirely different setting, Appleton was once again to help and encourage me. This attitude was typical of the deep interest which he displayed in the work of young scientists especially when their researches were related in any way to his own subject of radio science.

Appleton had a major impact on the development of science in the first half of the twentieth century, first by his own discoveries and later by his influence which extended throughout the international community of scientists. Mr. Clark's book is a record of a long and brilliant life. His account of Appleton's activities in so many diverse fields does ustice to the past and will be an inspiration for the future.

Bernard Lovell